STATE OF CALIFORNIA—HEALTH AND HUMAN SERVICES AGENCY

Department of Health Services

APPROVED BACKFLOW PREVENTION ASSEMBLES FOR SERVICE ISOLATION

(UPDATED OCTOBER 29, 2004)

DEPARTMENT OF HEALTH SERVICES
APPROVED BACKFLOW PREVENTION ASSEMBLIES

INTRODUCTION

The Department of Health Services (Department) has completed an update to the 2002 Edition of the listing of approved backflow prevention assemblies for service isolation in California. Unlike previous editions of the approved list, the Department will no longer specifically identify the manufacturer, model, and size of approved backflow prevention assemblies.

Alternatively, the Department recognizes the competency of the laboratory and field testing of backflow prevention assemblies conducted by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USC Foundation). Therefore, the Department approves the installation of backflow prevention assemblies for service isolation that have current approvals from the USC Foundation. (http://www.usc.edu/dept/fccchr).

The installation of a backflow prevention assembly after August 1, 2002, that does not have the appropriate approval is a violation of the California Code of Regulations, Title 17, Section 7601. The continued use of backflow prevention assemblies, that were included on previous versions of the Department's approved listing, in existing installations is allowable until the assembly fails and cannot be repaired. Failed assemblies must be replaced with a currently approved assembly or repaired with approved spare parts.

The type of protection required to prevent backflow into the public water supply must be commensurate with the degree of hazard that exists on the water user's premises. The types of approved backflow prevention assemblies includes: Double Check Valve (DC), Reduced Pressure Principle (RP), Double Check Detector (DCD), and Reduced Pressure Detector (RPD) Assemblies. Information regarding Air-gap Separation type backflow prevention is also included in this publication.

This publication supersedes the Department's previous updates/ editions of the approved backflow prevention assemblies' list and shall remain in effect until further notice.

For additional information and questions regarding this list, please contact the Department of Health Services at (916) 449-5623.

AIR-GAP SEPARATION

DEFINITION:

An Air-gap (AG) Separation is a physical break between the supply line and a receiving vessel. (*California Code of Regulations (CCR), Title 17, Section 7583(c)*).

CONSTRUCTION AND INSTALLATION SPECIFICATIONS:

An Air-Gap separation shall be at least double the diameter of the supply pipe, measured vertically from the flood rim of the receiving vessel to the supply pipe; however, in no case the separation shall be less than one inch. (*CCR, Title 17, Section 7602(a)*).

An Air-Gap separation shall be located as close as practical to the user's connection and all piping between the user's connection and the receiving tank shall be entirely visible unless otherwise approved in writing by the water supplier and the health agency. (*CCR, Title 17, Section 7503(a)*).

An Air-Gap separation is the minimum type of backflow protection required to protect the public water supply at the water user connection for the following situations.

- The public water system is used to supplement a recycled water supply on the water user premises.
- The public water system serves water users premises where there is wastewater pumping and/or treatment and there is no interconnection between public water supplies and the wastewater pumping and/or treatment facilities. This does not include a single-family residence that has a sewage lift pump.
- The public water system serves water users premises where recycled water is used and there is no interconnection between the water system and the recycled water system.
- The public water system serves water users premises where hazardous substances are handled in any manner in which the substances may enter the onsite potable water system.
- The public water system serves water users premises where there is an unapproved auxiliary water supply which is interconnected with the public water system.
- The public water system serves water users premises where the fire system is supplied from the public water system and is interconnected with an unapproved auxiliary water supply

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DOUBLE CHECK VALVE ASSEMBLIES

DEFINITION:

A Double Check Valve Assembly (DC) is an assembly of at least two independently acting check valves including tightly closing shut-off valves on each side of the check valve assembly and test cocks available for testing the watertightness of each check valve. (*CCR, Title 17, Section 7583(f)*).

A Double Check Detector Assembly is configured the same as the Double Check Assembly, with the exception that it is equipped with a bypass-detector that allows the visual inspection of flow through the assembly.

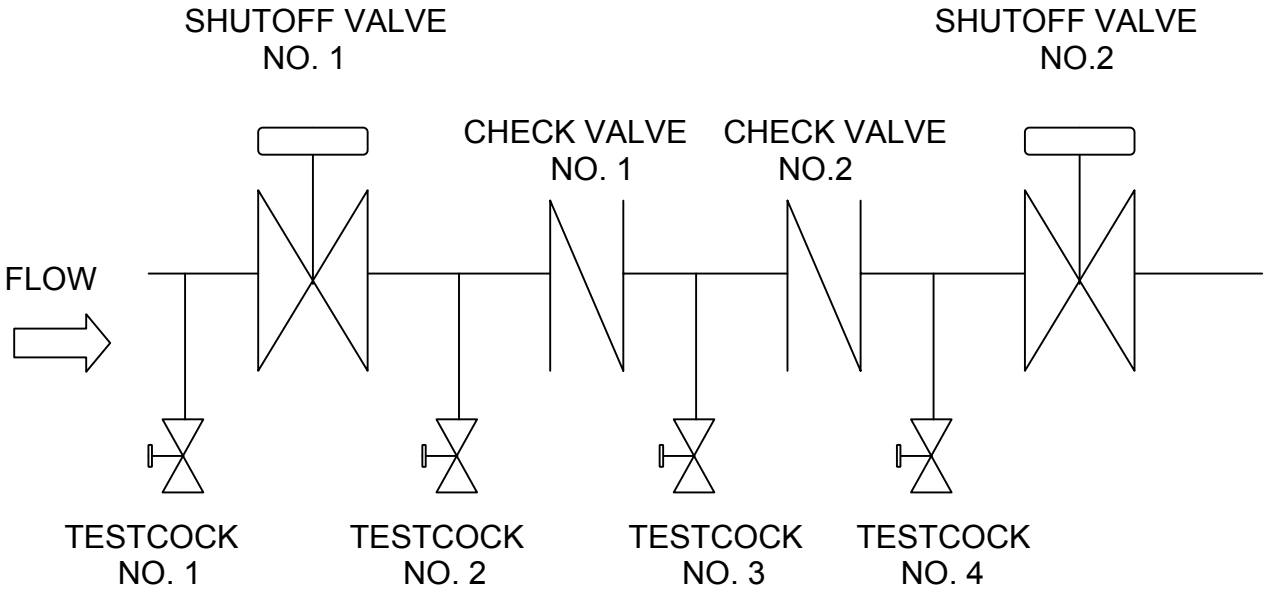
CONSTRUCTION AND INSTALLATION SPECIFICATIONS:

A required Double Check Vale Assembly, as a minimum, must conform to the AWWA Standard C506-78 (R83) adopted on January 28, 1978 for Double Check Valve Type Backflow Preventive Devices. (*CCR, Title 17, Section 7602 (b)*).

A Double Check Valve Assembly shall be located as close as practical to the user's connection and shall be installed above grade, if possible, and in a manner where it is readily accessible for testing and maintenance. (*CCR, Title 17, Section 7603 (b)*). Figure No. 1 shows a Double Check schematic.

FIGURE NO. 1

DOUBLE CHECK VALVE ASSEMBLY



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A Double Check is the minimum type of backflow protection required to protect the public water supply at the water user connection for the following situations.

- The public water system serves water user premises where the fire protection system is directly supplied from the public water system and there is an unapproved auxiliary water supply on the premises or accessible to the premises that is not connected to the public water system.

- The public water system serves water user premises where the fire protection system is supplied from the public water system and where either elevated storage tanks or fire pumps that take suction from private reservoirs or tanks are on the users premises.

- Class I and II fire sprinkler systems are not required to have backflow protection equipment at the service connection except as required by standards for Class I and II systems contained in the National Fire Protection Association Pamphlet No. 13, 1980 edition.

The American Water Works Association Manual No. M-14 defines Class I and II fire sprinkler systems as follows:

Class I - Automatic fire sprinkler systems with direct connection to the public water main only; no pumps or reservoirs, no physical connections to other water supplies, no antifreeze or additives of any kind, and all sprinkler drains discharge to the atmosphere or other safe outlets.

Class II systems are the same as Class I, except that booster pumps may be installed at the connections to the public water system.

Until further notice, the Department of Health Services approves the installation of double check valve backflow prevention assemblies for service isolation that have current approvals from the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USC Foundation).

Public water systems should acquire proof of USC Foundation approval prior to the installation of all double check valve backflow prevention assembly and maintain appropriate records of assembly approvals and installations.

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REDUCED PRESSURE PRINCIPLE ASSEMBLIES

DEFINITION:

Reduced Pressure Principle Backflow Prevention Assembly (RP) is a backflow preventer incorporating not less than two check valves, an automatically operated differential relief valve located between the two check valves, a tightly closing shut-off valve on each side of the check valve assembly, and is equipped with the necessary test cocks for testing. (*CCR, Title 17, Section 7583 (j)*).

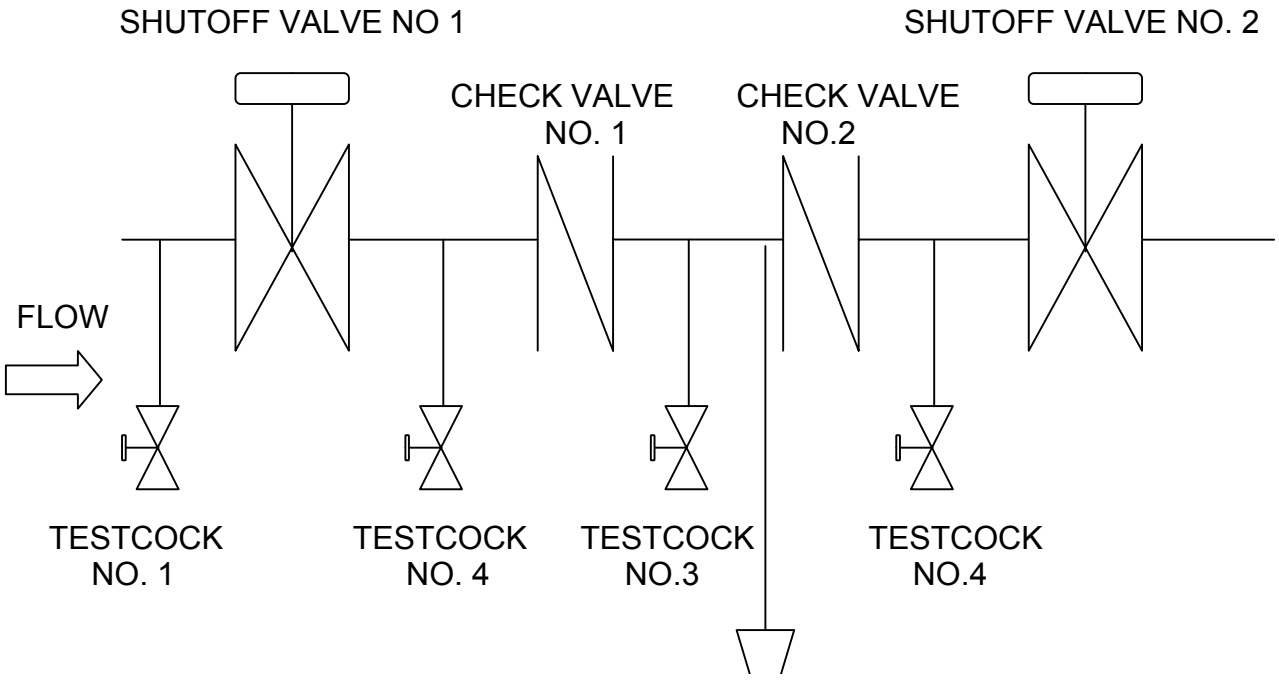
A Reduced Pressure Principle Detector Assembly is configured the same as the Reduced Pressure Principle Assembly, with the exception that it is equipped with a bypass-detector that allows the visual inspection of flow through the assembly.

CONSTRUCTION AND INSTALLATION SPECIFICATIONS:

A required Reduced Pressure Principle Backflow Prevention Assembly shall, as a minimum conform to the AWWA Standard C506-78 (R83) adopted on January 28, 1978 for Reduced Pressure Type Backflow Prevention Devices. (*CCR, Title 17, Section 7602(c)*).

A Reduced Pressure Principle Backflow Prevention Assembly shall be located as close as practical to the user's connection and shall be installed a minimum of twelve inches (12") above grade and not more than thirty-six inches (36") above grade measured from the bottom of the device and with a minimum of twelve inches (12") side clearance. (*CCR, Title 17, Section 7603 (c)*). Figure No. 2 shows a RP schematic.

FIGURE NO. 2
REDUCED PRESSURE PRINCIPLE ASSEMBLY



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A Reduced Pressure Principle Backflow Prevention Assembly is the minimum type of backflow protection required to protect the public water supply at the water user connection for the following situations.

- The public water system serves water users premises where there is an irrigation system that can inject fertilizers, herbicides, or pesticides.
- The public water system serves water users premises where there is an unapproved auxiliary water supply and there are no interconnections between the unapproved auxiliary water supply and the public water system.
- The public water system serves water user premises where there are pier hydrants that supply water to vessels for any purpose.
- The public water system serves water users premises where there are marine facilities.
- The public water system serves water users premises where entry to the premises is restricted so that inspections for cross-connections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross-connection do not exist.
- The public water system serves water users premises where there is a history of cross-connections being established or re-established on the premises.

Until further notice, the Department of Health Services approves the installation of reduced pressure principle backflow prevention assemblies for service isolation that have current approvals from the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USC Foundation).

Public water systems should acquire proof of USC Foundation approval prior to the installation of all RPP backflow prevention assembly and maintain appropriate records of assembly approvals and installations.

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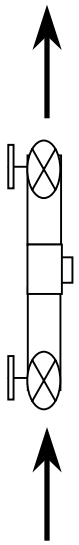
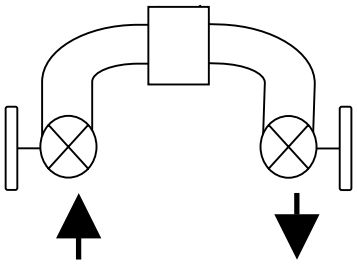
APPROVED CONFIGURATIONS

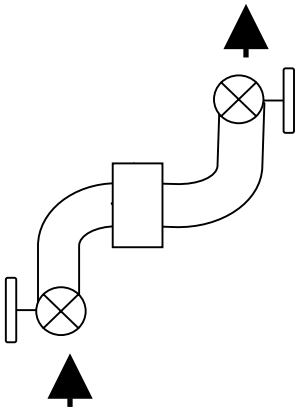
VERTICAL UP CONFIGURATIONS



"N AND Z " CONFIGURATIONS



N CONFIGURATION



Z CONFIGURATION